



# Fatemeh Aghaei

## Curriculum Vitae

*MSc in Bioinformatics / Computational Microbiology & Systems Biology /  
Translational Multi-Omics Data Analysis*

### Education and training

2023–Oct. 2025 **Master's degree, Bioinformatics**, *University of Birmingham*, Birmingham, United Kingdom.

Grade: Distinction

- Experienced in advanced bioinformatics analyses, including RNA-seq differential expression, copy number variation (CNV) profiling, multi-omics integration, immune deconvolution, and pathway enrichment analysis.
- Skilled in survival modeling (Kaplan–Meier, Cox proportional hazards), correlation of molecular features with clinical covariates, and visualization of complex datasets using R and Python.
- Thesis project: Investigated the role of ARNT in non-muscle invasive bladder cancer (NMIBC) using microarray- and RNA-seq-based cohorts, performing CNV and transcriptomic analyses, survival modeling, and correlation with hypoxia-related gene signatures to assess its potential as a prognostic biomarker

2017 - 2021 **Bachelor's degree, Cellular and Molecular Biology - Microbiology**, *Azad University, Tehran Medical Branch*, Tehran, Iran.

### Working Experiences

2022–Present **Senior Microbiology Technician**, *Johnson & Johnson Innovative Medicine, QC-Microbiology Department*, Leiden, the Netherlands.

- Developing an **automation application** to streamline data processing and visualization for microbiology reports.
- Serving as a **Digital and Technology Council** member, aligning departmental needs with modern digital tools and promoting process automation.
- Leading a **Lean-based reporting automation project** in collaboration with the Global Digital Analytics team, improving efficiency and data accuracy.
- Performing microbiological testing and data analysis to support product quality and regulatory compliance.

2019 **Microbiology Laboratory Technician**, *Naft Hospital*, Tehran, Iran.

- Conducted routine microbiological tests and accurately recorded and reported results in a clinical laboratory setting.

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## Programming and Computational Skills

**R** (Statistical Modeling, Shiny Applications, Multi-Omics Data Analysis, Visualization), **Python** (Data Processing, Exploratory Analysis, Scripting), **LaTeX** (Scientific Writing and Reporting), **Galaxy** (Workflow-Based Bioinformatics Analyses), **Git-Linux** (Version Control and Command-Line Environment).

**Additional Skills:** PCA, Differential Expression Analysis, Survival Analysis, Pathway Enrichment, Biomarker Discovery, Applied Statistical Methods.

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## Selected Courses

- Present **Algorithms and Data Structures**, Offered by Princeton University. Passing on Coursera.org.
- 2024-2025 **Applied Metabolomics and Advanced (Omics) Technologies**, Offered by University of Birmingham, part of Bioinformatics Master's degree, Focus on metabolomics data processing, integration, and multi-omics applications..
- 2023-2024 **Health Data Analytics**, Offered by University of Birmingham, part of Bioinformatics Master's degree, Focus on healthcare data acquisition, integration, visualization, and statistical analysis..
- 2023-2024 **Applied Genomics and Next Generation Sequencing**, Offered by University of Birmingham, part of Bioinformatics Master's degree, Focus on data processing, integration, and analysis of large-scale genomic data from sequencing technologies..
- 2023-2024 **Statistical Machine Learning**, Offered by University of Birmingham, part of Bioinformatics Master's degree, Application of machine learning models for data-driven insights, predictive analytics, and decision-making support..
- 2022 **Introduction to Genomic Technologies (Certificate)**, Offered by Johns Hopkins University. Passed on Coursera.org.
- 2022 **Introduction to Probability and Data with R (Certificate)**, Offered by Duke University. Passed on Coursera.org.
- 2021 **Food Fermentation: The Science of Cooking with Microbes (Certificate)**, Offered by HarvardX, an online learning initiative of Harvard University. Topics: cooking food with the help of microbes (bacteria, yeasts, molds) to have fermented food. Passed on edX.org.
- 2021 **Fundamentals of Immunology: Innate Immunity and BCell Function (Certificate)**, Offered by Rice University. Passed on Coursera.org.
- 2021 **Academic English: Writing: Getting Started with Essay Writing (Certificate)**, Offered by University of California, Irvine. Passed on Coursera.org.

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## Volunteering Experiences

- 2022-Present **Volunteer**, Stichting NL Cares, Amsterdam, the Netherlands.

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## Languages

English (Fluent), Dutch (Intermediate), Persian (Native)

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